MONTHLY WEATHER REVIEW,

JULY, 1880.

(General Weather Service of the United States.)

WAR DEPARTMENT,

Office of the Chief Signal Officer,

DIVISION OF

TELEGRAMS AND REPORTS FOR THE BENEFIT OF COMMERCE AND AGRICULTURE.

INTRODUCTION.

In preparing this REVIEW the following data, received up to August 14th, have been used, viz: the regular tri-daily weather charts, containing the data of simultaneous observations taken at 139 Signal Service stations and 15 Canadian stations, as telegraphed to this office; 148 monthly journals and 157 monthly means from the former, and 15 monthly means from the latter; reports from 24 Sunset stations; 209 monthly registers from Voluntary Observers; 37 monthly registers from United States Army Post Surgeons; Marine Records; International Simultaneous Observations; monthly reports from Voluntary Observers in, and the local Weather Service of, Missouri; reliable newspaper extracts; special reports.

BAROMETRIC PRESSURE.

The general distribution of the atmospheric pressure, as reduced to sea-level, for the month of July, 1880, over the United States and Canada is shown by isobaric lines on chart No. II. At a few out-lying stations the means are given in figures indicating English inches. The pressure is found to preserve much the same general distribution that it had during June, the regions of highest barometer being over the Southern States and Northern Pacific region, while the lowest barometer means are to be found in the Red river of the North and Sacramento valleys.

Departures from the Normal Values for July.—Like the preceding month the means for the present month, when compared with the average July means for the past eight years, show a remarkable uniformity. Along the immediate Atlantic and Texas coasts, from Iowa to Lower Michigan and in the Rocky Mountains the pressure is slightly below the normal, the greatest deviations being 0.05 of an inch at Charleston, Chicago and on the summit of Pike's Peak and 0.06 at Wood's Holl; elsewhere the means are slightly above normal, the largest excesses being 0.04 inch at Cairo, Cincinnati, Detroit and Albany and 0.06 at Duluth.

Barometric Ranges.—The local barometric ranges, as reduced to sea level, have been exceedingly small over the entire country. They are least along the southern border and increase very slowly northwards. It amounts to 0.20 of an inch at Key West and New Orleans, and 0.21 at Los Angeles, Cal.; to 0.49 at Norfolk, 0.32 at Cairo and 0.26 at San Francisco; to 0.52 at New York, 0.45 at Chicago, 0.54 at Cheyenne and 0.48 at Roseburg, Oregon; and along the northern border, to 0.57 at Eastport, Me., 0.70 at Alpena, Michigan., 0.68 at Marquette, 0.75 at Pembina, 0.62 at Virginia City, Mont., and 0.49 at Olympia, Wash. Ty.

Areas of High Barometer.—Eight areas of high barometer are described below. None of them present any very interesting features. The maximum pressures, as reduced to sea level, over the United States west of the Rocky Mountains, were 30.48 at Umatilla and 30.37 at Portland during the presence of high area No. IV, and, east of the Rocky Mountains, 30.30 at Denver during the presence of the same area, and 30.29 at Marquette during the presence of area No. VIII. The lowest temperatures of the month, in general, accompanied areas Nos. V and VIII.

This Paper is furnished by the Government of the United States, without charge, to the Co-operating Observers acting with the Signal Office in the collection of Simultaneous Reports.

No. I—appeared on the 2nd over the Lake region and moved slowly southeastward over the country east of the Mississippi, accompanied by clear or fair weather and light winds, until the morning of the 5th, when the highest barometer was off the North Carolina coast and low barometer area No. III over the Lake region.

No. II—followed in rear of low area No. III. On the 5th it covered the country west of the Mississippi, and having moved slowly eastward, accompanied by clear or fair weather from the Gulf coast to the Lakes, on the morning of the 8th covered the East Gulf and Atlantic States.

No. III—appeared over Quebec on the morning of the 11th in rear of low area No. V, and moving southward during that day and the 12th, had disappeared by night of the latter day to the south of Nova Scotia.

No. IV.—Except slight falls in the barometer during the presence of low areas Nos. III, IV and VI over the Western Plateau Districts, and a temporary rise in the barometer on the 8th over Oregon and Washington Territory, the pressure along the Pacific coast during the first ten days of July, deviated but little from the normal. On the 11th and 12th, however, a decided increase of pressure occurred over the Northern Pacific region and Northern Plateau District, (including Oregon, Washington Territory and Idaho) with the production of the following low temperatures, the minima of the month, at the stations named: Roseburg, Or., 45°; Red Bluff, Cal., 61°; Visalia, Cal., 56°; Boise City, Idaho, 41°; Salt Lake City, 45°, (with frost): Burkes, Ariz., 60°; Yuma, Ariz., 69°; Virginia City, Mont., 37°, and Helena, Mont., 38°. The maximum pressure (reduced to sea-level) of the month, over this region occurred as follows: On the 13th at Portland, Or. and Olympia, W. T., 30.34, or 0.33 and 0.36, respectively, above normal; at Winnemucca, Nev., 30.23 or 0.24; Umatilla, Or., 30.45 or 0.36; Salt Lake City, 30.22 or 0.29; 14th, Boise City, Idaho, 30.39 or 0.32, and Virginia City, Mont., 30.04 or 0.22. On the 15th the maximum pressures were transferred to the east of the Rocky Mountains and the barometer fell slightly over the Northern and Middle Plateau Districts; on this day the maximum pressure of the month was reported at Deadwood, Dak., (not reduced) 25.69 or 0.28 above normal; Cheyenne, 30.29 or 0.21; Denver, 30.30 or 0.20. The advance of this high barometer area was probably the remote cause of the heavy rains or "cloud bursts" which occurred during the afternoon of the 13th in the mountains in El Paso and neighboring counties in Colorado. A short account of the floods resulting therefrom will be found under the proper heading. On the 16th the maximum pressures covered the eastern slope of the Rocky Mountains and the northerly winds extended eastward to Michigan, Indiana and Tennessee without much change of temperature. During the 17th and 18th it divided into two small areas, the northern one moving into Canada and the southern one into the Lower Mississippi valley, which disappeared in their respective locations without producing any marked influence upon the weather east of the Mississippi.

No. V—appeared over the Northwest on the 19th, and during the 20th, 21st, 22nd and 23rd moved slowly southwards, central over the eastern slope of the Rocky Mountains, to Texas. The northerly or westerly winds in advance of this area, and in rear of low area No. VIII., extended south and eastward on the 19th to the Lower Missouri valley and Lake Michigan; on the 20th to northern Texas, Tennessee and the Middle Atlantic States; on the 21st to the interior of Texas and the Gulf States, producing the rains on the two latter dates, noticed under low area No. IX; and during the 22nd to the Gulf coast. Cautionary Signals were ordered in expectation of brisk winds, at Indianola on the midnight of the 22nd, and at Galveston on the morning of the 23rd, but were not justified; the wind at Indianola and Galveston only reaching NE., 14. The minimum temperatures of the month over the largest portion of the United States, from the Rocky Mountains eastward, occurred during the presence of this high barometer area. The following are the lowest recorded at the Signal Service stations in the several districts under its influence:—on the 19th, Pembina, Dak., 40°. 20th, Bismarck, 44°; La Crosse and Davenport, 52°; St. Louis, 59°. 21st, Grand Haven, 50°; Detroit, 52°; Indianapolis, 55°. 22nd, Denison, Tex., 57°; Erie, Penna., 57°; Augusta, Ga., 69°; Sandy Hook, N. J., 50°. 23rd, Ft. Gibson, Ind. Ty., 55°; Nashville, Tenn., 59°; New Orleans and Mobile, 71°; Charlotte, N. C. and Chincoteague, Va., 63°. 24th, Stockton, Tex., 58°; Laredo, Tex., 70°; Pensacola, Fla., 69°; Atlanta, Ga., 64°. The Missouri Weather Service reports as follows: "On the 21st and 22nd, the minimum (temperature) recorded in Lafayette Park (St. Louis) was 54°, and this figure has been exceeded but once in 45 years. In July, 1859, a minimum of 53° was observed by Engelmann." During the 25th and 26th the area moved eastward over the Southern States, followed by the easterly winds and rains in the Southwest, noticed under low area No. XI.

No. VI—spread gradually southeastward from Washington Territory and Montana on the 22nd, to Colorado on the 25th, when it joined the preceding area. It produced the following minimum temperatures of the month:—25th, Cheyenne, 49°; Denver, 54° and Pike's Peak, 28°. 26th, Santa Fé, 46°; Socorro, N. M., 59°, and Ft. Elliott, Tex., 49°.

No. VII.—During the night of the 25th the barometer rose rapidly along the coast of Oregon and Washington Territory, and on the 26th and 27th, fresh to brisk northwesterly winds extended south and eastward over the Plateau Districts and Montana, in rear of low area No. XII. On the 29th the maximum pressure was transferred to the Northern and Middle Plateau Districts, over which region it gradually dissipated. The following minimum temperatures of the month were recorded on the 28th:—Olympia, Or., 42°; Sacramento, Cal., 55°; Umatilla, Or., 52°, and Winnemucca, Nev., 41°.

No. VIII—appeared over Lake Superior on the 26th, and during the 27th, 28th, 29th, 30th and 31st moved very slowly southeastward, with its centre over the Lake region and Middle Atlantic States, to the Atlantic coast. The following minimum temperatures occurred in connection with this area:—on the 29th, Cleveland, Ohio, 52°; Pittsburg, Pa., 53°; Burlington, Vt., 49°; Atlantic City, N. J., 53°; and on the 30th, Wilmington, N. C., 65°; Ft. Whipple, Va., 58°, and Boston, Mass., 52°. Cautionary Signals were ordered along the North Carolina coast from Smithville to Cape Henry, which were justified from Smithville to Cape Hatteras, by a NE. wind of 26 miles at Cape Lookout.

Areas of Low Barometer.—Twelve areas of low barometer are described below, but, apart from the local thunder and hail-storms by which some of them were accompanied, are devoid of any special interest. Although the pressure along the Pacific coast during the early history of low areas Nos. III, IV, VI and XII experienced a decided decrease, it has not been possible to trace any of these areas back to the Pacific. With the exception of the centres of areas Nos. IX and XI, both of which, the latter during the whole and the former during the early portion of its history, were very poorly defined, the tracks of all the centres lie to the north of the 35th parallel.

No I.—This is the same area of low barometer that was noticed in the REVIEW for June as area No. XIII. During the 1st it remained central near to Dodge City, Kansas, at which station the pressure continued throughout the day about 0.20 in. below the normal. During the 2nd and 3rd it progressed in a NNE. course to north of Lake Superior at an average speed of about 20 miles per hour and disappeared thence into the British Possessions. During the 1st southerly winds generally prevailed over the United States from the Southwest to Illinois and thence to the Atlantic coast, the highest barometer being found off the South Atlantic coast, while over the northern portions of the Northwest and Upper Lake region northerly winds predominated. Numerous rains fell in the Lower Missouri valley and thence to Tennessee, the lower portions of the Lake region and Middle States. In the southern portions of the latter district the rains became heavy, with much thunder and lightning, as the day progressed, and during the night a centre of low barometer was formed which will be described as area No. II. A heavy thunder storm was also reported at New Orleans. On the 2nd the storm moved slowly northwards, central over Kansas. During the morning a very heavy thunder storm prevailed in the Lower Missouri valley: at Leavenworth a total rain-fall of 3.53 inches in 7 hours and a westerly wind of 38 miles per hour, damaging city property, were registered. At Mexico, Mo., 3.88 inches of rain fell during this day; at St. Louis, 2.11 inches of rain fell; at Yankton a severe dust-storm prevailed—wind NE. 43 miles. During the 1st and 2nd heavy hail accompanied the thunder storms in this section. On the 3rd the centre continued its northerly course over Nebraska and Minnesota; during the early morning a second thunder storm occurred at Leavenworth, but afterwards this area appeared to lose its stormy character.

No. II—appears to have slowly developed during the 1st in the trough of low barometer and rain-area which extended eastward from the area just described across the Lake region and Middle States. At 11 p. m. of the 1st a heavy thunder storm was prevailing over Virginia and thence to New Jersey with southwesterly winds, while northerly winds and rain were reported at Washington, Baltimore and Philadelphia. The rain-falls at Lynchburg, Norfolk and Cape Henry were, respectively, 1.80, 1.30 and 1.60 inches, while a strong gale from the SW. was reported at Chincoteague, Va. During the 2nd and 3rd this area passed in an ENE. course over the Atlantic, with its centre at some distance off the American coast, but caused cloudy or rainy weather during these days over New England, Nova Scotia and Cape Breton. No Cautionary Signals were ordered for this storm. The following maximum velocities (in miles per hour) were recorded: Cape Lookout, SW. 36; Cape Hatteras, SW. 34; Chincoteague, SW. 51; Delaware Breakwater, SW. 36, and Barnegat, W. 33. At noon of the 3rd Cautionary Signals were ordered on the coast of North Carolina, in anticipation of strong northerly winds, which were justified by the following velocities: Cape Hatteras, NE. 27; Kittyhawk, NE. 29 and Cape Henry, N. 27.

No. III.—After a temporary rise in the barometer, in rear of area No. I, over Colorado, Kansas and Nebraska, during the afternoon and night of the 2nd, the pressure decreased during the morning of the 3rd and on the afternoon of the latter date the centre of the present area may be located in Colorado to the southwest of Denver. During the 4th, 5th and 6th it moved in east-northeasterly course over the Lake region and down the St. Lawrence valley at an average and very uniform rate of about 30 miles per hour. During the afternoon and night of the 3rd, the centre passed eastward over Kansas and Nebraska as a very severe storm. At Cheyenne, Wy. Ter., a thunder storm, with heavy hail, ("stones large as pigeon eggs") began at 1.45 p. m. and ended at 2.25 p. m., during which the temperature of the air fell from 85° to 59°. At North Platte, Neb., the wind, at 6.40 p. m., blew with a steady velocity of 80 miles per hour from the NW, "with gusts of 100 miles velocity; rain fell in torrents with some small hail." At Dodge City, with a southerly wind, 1.26 in. rain fell in 2 hours. During the 4th and 5th the centre of depression moved to the St. Lawrence valley and the area of rains and local thunder storms spread itself over the entire eastern half of the United States, except along the Gulf, North Carolina and Virginia coasts. Heavy rain-falls were recorded on the 4th at Davenport, Ia., and on the 5th at Charleston, S. C., Charlotte, N. C., Baltimore, Md., Sandy Hook, N. J., and New York. Cautionary Signals were ordered up on the morning of the 5th from Sandy Hook, N. J., southward along the Atlantic coast to Chincoteague, Va., and on

the afternoon of the same date southward to Cape Lookout, N. C. They were all justified by the following maximum velocities: Cape Lookout, SW. 25; Cape Hatteras, NE. 27; Kitty Hawk, NE. 28; Cape Henry, N. 31, Chincoteague and Delaware Breakwater, S. 34; Cape May, S. 36; and Philadelphia, S. 25.

No. IV—appeared over northern Idaho and western Montana during the night of the 5th, and moved thence, during the 6th, 7th and 8th, at an average velocity of about 15 miles per hour, eastward over Montana, Dakota and Minnesota, disappearing on the 9th to the north of Lake Superior. It is highly probable, however, that area No. V may be a continuation of the same depression. On the 6th a thunder-storm was reported at Virginia City, Mont., and a NW. gale of 48 miles per hour at Fort Keogh, Mont., and during the 7th and 8th, threatening weather and rains extended over the Northwest and Upper Lake region. Occasional local rains or thunder-showers were also experienced on these days in the Southern States.

No. V—moved in a southeasterly direction from Quebec over the Gulf of St. Lawrence, during the 9th and 10th, and may be a continuation of the preceding area. It produced light rains in northern New England and the Canadian Maritime Provinces, and during its regime southerly winds and high temperatures prevailed over the interior of the Middle States and New England.

No. VI.—On the 9th the pressure over the Western Plateau, which, with the exception of a slight fall on the night of the 6th at Salt Lake City during the passage of area No. IV, had remained near the normal since the 3rd, experienced a decided fall. At 9 p. m. the barometer at Salt Lake City had fallen to 29.71 or 0.21 below the normal. Except light rains in western Texas, southern New Mexico, Oregon and Washington Territory, clear or fair weather prevailed every where west of the Mississippi. On the 10th the barometric fall spread rapidly eastward to the Missouri valley, and, by night, threatening or stormy weather prevailed from Colorado and Montana to the Lake region. On this day, (10th) the lowest barometers (reduced to zero and sea-level) of the month occurred at the following stations:—Virginia City, Mont., 11:00 a. m., 29.41, or 0.37 in. below normal; Salt Lake City, 4:20 p. m., 29.59, or 0.34 in.; Cheyenne, 3:51 p. m., 29.75, or 0.31 in.; Denver, 3:52 p. m., 29.74, or 0.35 in.; on the summit of Pike's Peak, 9:07 p. m., 30.02, or 0.27 in.; and North Platte, 3:36 p. m., 29.09, or 0.26 in. The hours of observation are Washington mean time. The maximum velocity of the wind for the month occurred on this day on the summit of Pike's Peak (SW. 44) at 10 p. m., and at Cheyenne (N. 32.) On the 11th, the storm was central in the Missouri valley, but was unattended by high winds, except a southerly wind of 40 miles at North Platte. Cautionary Signals were ordered for Duluth on the morning of the 11th, and remained displayed until the morning of the 12th, but were not justified. During the 12th and 13th, this area moved in a southeasterly direction from Lake Superior to off the coast of New England at an average rate of 35 miles per hour, attended by numerous local rains, occasional heavy, and brisk winds at one or two isolated stations (Rochester, N. Y., W. 31; Sandy Hook, N. J., NW. 28.) The observer at Paterson, N. J., reported a rain-fall of 1½ inch in eight minutes on the 13th. Excepting the signal at Duluth, already noticed, no signals were ordered for this area.

No. VII—appeared over Manitoba on the 14th, and moving at an average rate of 26 miles per hour, passed eastward, with its centre to the north of the Lake region and St. Lawsence valley during the 15th and 16th. Numerous rains, occasionally heavy, occurred on these days over the country east of the Mississippi, and brisk winds were recorded at a few stations in the Lake region and along the Atlantic coast from North Carolina to New Jersey. High winds were recorded at Alpena (W. 39) and Delaware Breakwater (SW. 42.) Cautionary Signals were ordered up, on the afternoon of the 16th, at Wood's Holl, Boston and Thatcher's Island, Mass., which were justified at Wood's Holl (SW. 28.)

No. VIII—developed over the Missouri valley region during the 18th, and on the same day moved by an ESE'ly path into Iowa and Missouri. On the morning of the 19th, the direction of its path had changed towards the NE. and during this day and the 20th its path continued in that direction over the Lake region and St. Lawrence valley. The average rate of translation was about 18 miles per hour. On the morning of the 18th, ere it was possible to locate the centre of depression, clear or fair weather prevailed over the entire Northwest, from Minnesota and Missouri to Montana. By afternoon the centre had become clearly defined and the winds at the stations in the extreme Northwest, circulated around a point to the west of Yankton. Very light rain had accompanied the NE. winds at Duluth, Minn., and Deadwood and Bismarck, Dak., and cloudy or threatening weather, with southerly winds, prevailed in the Red river valley, with heavy rain at Fort Sill. By the 11 p. m. report, however, rain had become general near the centre of depression and the rain-area extended from Texas to Wisconsin. On the 19th and 20th, as it moved towards the ENE. over the Lake region and St. Lawrence valley it produced brisk winds and rainy weather, with occasional heavy rain-falls, from those districts to the Ohio valley, Middle States and New England. Cautionary Signals were ordered up on the morning and afternoon of the 19th, at the ports along the Lake shores from Escanaba, Mich., to Buffalo, N. Y.; at 11 p. m., at ports along the New England coast from Eastport, Me., to Wood's Holl, Mass., and along the North Carolina and Virginia coasts, from Cape Hatteras to Chincoteague, and on the afternoon of the 20th at Delaware Breakwater and Cape May, N. J. They were justified, except at Port Huron, Erie and Eastport, by the following maxi-

mum velocities: Escanaba and Milwaukee, N. 27; Sandusky, W. 30; Rochester, W. 26; Thatcher's Island, SE. 34; Cape May, N. 25 and Kittyhawk, NW. 36.

No. IX.—As the preceding area moved over the northern portion of the country, southerly winds and high temperatures prevailed over the Southern States; as the low pressures moved eastward, the wind veered to cooler northerly in advance of high barometer area No. V, and a general rain set in, on the 20th, over the Southwest, which during the 21st gradually extended eastward to Tennessee, the Eastern Gulf and South Atlantic States. At 11 p. m. of the latter date a distinct circulation of the winds was observable in East Tennessee, Georgia and the Carolinas. On the morning of the 22nd the lowest pressure 29.93 or 0.08 below normal was observed at Charlotte, N. C., and during the day this area moved northeastwards off the coast as a somewhat severe storm. Cautionary Signals were ordered up along the North Carolina coast at noon, and along the New Jersey coast during the afternoon of the 22nd. They were all justified by the following maximum velocities: Cape Lookout, SW. 37; Cape Hatteras, SE. 33; Kittyhawk, SW. 40; Chincoteague, SW. 50; Delaware Breakwater, NW. 37; Cape May, NE. 28; Barnegat and Sandy Hook, N'ly, 30.

No. X—moved eastward over the British Possessions and Canada during the 25th and 26th and on the 27th covered New Brunswick and New England. The path of its centre was located too far north to allow it to appear on chart No. I. This area produced rainy and threatening weather from the Lake region to the Atlantic coast and on the night of the 25th, brisk southerly winds prevailed for a short time over the western end of Lake Erie and on Lake Huron. On the afternoon of the 26th Cautionary Signals were ordered along the Atlantic coast from Delaware Breakwater to Barnegat, N. J., and from Wood's Holl, Mass., to Portland, Me., which were justified by the following maximum velocities: Philadelphia, SW. 26 and Thatcher's Island, Mass., S. 34.

The two succeeding areas of low barometer, the one covering the extreme Southwest, namely, western Texas and the Rio Grande from the 26th to the 30th, the other the Northwest from the 28th to 30th, were apparently subsidiary to a large area of low pressure which covered portions of the Rocky Mountain region from the 25th to the end of the month. The tracks of these areas are not charted.

No. XI.—From the 26th to the end of the month the barometer over southern Texas and the Rio Grande valley remained slightly below the normal, while the highest pressures during these days were generally to be found over the Lake region. With this distribution of pressure easterly winds predominated over the Southwest and valley of the Rio Grande and cloudy or rainy weather, with heavy local rains, generally prevailed.

No. XII.—This area of low barometer may have originated in southern California on the 26th and have subsequently moved in a NE., direction over the Rocky Mountains to the Northwest, but its characteristics are not sufficiently well marked to allow a track of its path to be charted. On the evening of the 24th, the barometer at Visalia, Cal., fell to 29:64 or 0:12 below the normal, followed on the 25th by a sand storm from the NW. On the 25th and 26th, the lowest barometer, although only slightly below the normal, was transferred to the Western Plateau and Rocky Mountain Region. On the 25th,the observer at Winnemucca, Nev., reported "thunder storms on all sides during the day." During the 26th, 27th, 28th, and 29th, heavy storms of hail, sleet and rain occurred in the Rocky Mountains. On the 28th the lowest barometer was transferred to the Missouri valley, and on the 29th and 30th to the Red River of the North valley, and by the afternoon of the 31st the area of local rains and thunder showers had extended eastward to Illinois and Michigan. In Missouri the rains were quite heavy. Cautionary Signals were ordered for Duluth on the afternoon of the 28th and remained displayed until morning of the 30th, but were not justified.

INTERNATIONAL METEOROLOGY.

Three International charts, Nos. IV, V and VI, accompany the present Review. They are for the months of *June*, 1880 and *November*, 1878.

On chart No. IV will be found the probable course of the principal low barometer areas over the North Atlantic Ocean during the month of *June* 1880. As during the two preceding months (April and May, 1880) the Northern Atlantic during the month of June continued remarkably free from severe storms. The month opened with areas of low barometer, central over the Gulf of St. Lawrence (No. I chart IV,) near 38 N. 35 W. (No. II), and over the Bay of Biscay (No. III). Elsewhere over the region under consideration (namely the Atlantic Ocean, between the parallels of 35 and 55 N. and the adjacent coasts of America and Europe) high barometer generally prevailed, the regions of maximum pressure being to the south of the Banks of Newfoundland and to the north of Scotland. The low area on June 1st over mid-ocean is based upon the report of ship *British Commodore* and was probably of short duration. This vessel, in 40 N. 39 W. on June 1st reported barometer, 29.68 or 753.8, wind N. force 9, with rain-squalls. On the 2nd the area was apparently filling up and on the 3rd, so far as reports at present to hand indicate, had disappeared. In the mean time the low over the Gulf of St. Lawrence had passed to the north of Newfoundland; the one over the Bay of Biscay had moved toward the Netherlands, while a new area (No. IV on chart IV,) which apparently developed over North Carolina during the 1st, had moved northeastward and was on the morning of the 3rd central between Nova Scotia and the Bermudas—ship *Jumna* in